

**Listing of Claims:**

Claims 1-30 (cancelled).

Claim 31 (previously presented): In a communications system including a first communications station and a second communications station, said first communications station having a transmitter antenna array for generating an antenna beam pattern used for transmission of information signals to said second communications station, said apparatus for adaptively forming said beam pattern comprising:

means for estimating data transmitted from said second communications station to said first communications station based on signals received via multiple antennas of a receiver antenna array at said first communications station;

means for developing a spatial statistical characterization of communication from said second communication station to said first communication station based on said estimated transmitted data and said signals received via said multiple antennas of said receiver antenna array;

means for developing a beam pattern weight vector based on said statistical characterization; and

means for forming said beam pattern in accordance with said beam pattern weight vector.

Claim 32 (previously presented): The apparatus of claim 31 wherein said transmitter antenna array is the same array as said receiver antenna array.

Claim 33 (previously presented): The apparatus of claim 31 wherein said receiver antenna array and said transmitter antenna array are different antenna arrays.

Claim 34 (previously presented): A product for operating a central communications station to form a transmission beam pattern to communicate with a remote communications station using a transmitter antenna array, said product comprising:

code that causes estimation of data transmitted from said remote communications station to said central communications station based on signals received via multiple antennas of a receiver antenna array at said central communications station;

code that causes development of a spatial statistical characterization of communication from said remote communication station to said central communication station based on said estimated transmitted data and said signals received via said multiple antennas of said receiver antenna array;

code that causes development of a transmission beam pattern weight vector based on said spatial statistical characterization;

code that causes formation of said transmission beam pattern in accordance with said transmission beam pattern weight vector; and

a computer-readable medium that stores the codes.

Claim 35 (previously presented): The central communication station of claim 34 wherein said transmitter antenna array is the same array as said receiver antenna array.

Claim 36 (previously presented): The central communication station of claim 34 wherein said receiver antenna array and said transmitter antenna array are different antenna arrays.